Rec'd PET/FTO 03 JUN 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 17 June 2004 (17.06.2004)

PCT

(10) International Publication Number WO 2004/050905 A1

(51) International Patent Classification⁷: C12Q 1/66, 1/68

(21) International Application Number:

PCT/GB2003/005272

(22) International Filing Date: 2 December 2003 (02.12.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 0228139.2

3 December 2002 (03.12.2002) G

(71) Applicant and

(72) Inventor: KOZLOVA-ZWINDERMAN, Olga [RU/GB]; Flat 5, 239 Gilmerton Road, Edinburgh EH16 5TH (GB).

- (74) Agent: Kennedys Patent Agency Limited; Floor 5 Queens House, 29 St Vincent Place, Glasgow G1 2DT (GB).
- (81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,

CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: EUKARYOTIC BIOSENSOR MAKING USE OF A CALCIUM REGULATED LIGHT EMITTING ENZYME

(57) Abstract: The present invention provides a method of using eukaryotic cells being transformed with a light emitting Ca2+ regulated photoprotein gene for determining the presence or absence of at least one toxic substance in a sample and for assisting in the identification of the toxicant(s). More specifically there is provided a toxicity assay for various uses including determining the presence of toxins and in particular heavy metals and organophenols, general cytotoxicity testing of pure chemicals and chemical mixtures in particular for drug development testing, testing of food and drink products, cosmetics testing and identification of organisms in particular of fungal strains.

****			PCT/up 03/	05272
A. CLASSIF IPC 7	C12Q1/66 C12Q1/68			
According to	International Patent Classification (IPC) or to both national class	sification and IPC		·
B. FIELDS		1Al		
IPC 7	·		haded to the fields one	mbod
	ion searched other than minimum documentation to the extent t			
Electronic da	ata base consulted during the international search (name of dat	a base and, where practica	il, search terms used)	
EPO-In	ternal, BIOSIS, EMBASE, WPI Data			
C. DOCUME	ENTS CONSIDERED TO BE RELEVANT			
Category °	Citation of document, with indication, where appropriate, of the	ne relevant passages		Relevant to claim No.
х	WO 00/02045 A (DETHEUX MICHEL VINCENT (BE); EUROSCREEN S A (PARMENTIER) 13 January 2000 (2 page 10; example 1 page 13; example 5 figures 2,6	BE);	·	1-60
X	WO 02/075273 A (DUPRIEZ VINCEN EUROSCREEN S A (BE); PARMENTIE 26 September 2002 (2002-09-26) abstract page 30; example 1 page 35; examples 2,3 page 29, lines 5-10 claims 1-3; figures 2,11	R MARC (BE))		1-60
X Fur	ther documents are listed in the continuation of box C.	X Patent famil	y members are listed i	n annex.
"A" docum consi "E" earlier filing "L" docum which citalik "O" docum other	ategories of cited documents: nent defining the general state of the art which is not dered to be of particular relevance document but published on or after the international date ent which may throw doubts on priority claim(s) or h is cited to establish the publication date of another on or other special reason (as specified) nent referring to an oral disclosure, use, exhibition or reason use of the priority date of the priority date of the priority date claimed	or priority data is died to underst invention "X" document of par cannot be cons involve an inverse document of par cannot be cons document is coments, such co in the art.	ticular relevance; the c idered to involve an in mbined with one or mo	the application but sony underlying the claimed invention be considered to cument is taken alone claimed invention wentive step when the one other such docu-us to a person skilled
Date of the	e actual completion of the international search		of the international sea	rch report
1	16 March 2004	07/04/	/2004	

Authorized officer

Leber, T

European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016

Name and mailing address of the ISA



PCT/UD J3/05272

C.(Continu	RIGH) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MITHOFER A A ET AL: "Induction of H202 synthesis by beta-glucan elicitors in soybean is independent of cytosolic calcium transients" FEBS LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 508, no. 2, 16 November 2001 (2001-11-16), pages 191-195, XP004323228 ISSN: 0014-5793 abstract page 191, right-hand column figure 1	. 61-86
Y	WO 01/51923 A (MITOKOR; MURPHY ANNE N (US); STOUT AMY K (US)) 19 July 2001 (2001-07-19) claim 19; figure 4	14-18, 34-38, 75-86
Y	CELL CALCIUM. NOV 1999, vol. 26, no. 5, November 1999 (1999-11), pages 193-199, XP0009026739 ISSN: 0143-4160 abstract page 194, left-hand column; figures 1,4	14-18, 34-38, 75-86
P, A	SCIENCE. 11 JUL 2003, vol. 301, no. 5630, 11 July 2003 (2003-07-11), pages 213-215, XP0001179643 ISSN: 1095-9203 the whole document	
Α .	HERBAUD M-L ET AL: "Calcium signalling in Bacillus subtilis" BIOCHIMICA ET BIOPHYSICA ACTA. MOLECULAR CELL RESEARCH, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 1448, no. 2, 10 December 1998 (1998-12-10), pages 212-226, XP004277892 ISSN: 0167-4889 the whole document	
A	US 5 714 666 A (SHEU YEONG-AN ET AL) 3 February 1998 (1998-02-03) the whole document	



Intel Application No
PCT/up 03/05272

Patent document cited in search report		Publication date	Patent family member(s)			Publication date	
WO 0002045	A	13-01-2000	AT	232298 T	1	5-02-2003	
	• •		WO	0002045 A	2 1	3-01-2000	
			CA	2336929 A	1 1	3-01-2000	
			DE	69905291 Di	1 1	3-03-2003	
			DE	69905291 T	2 0	6-11-2003	
			DK	1145002 T	3 0	5-05-2003	
			EP	1145002 A		7-10-2001	
			ES	2192060 T	-	6-09-2003	
			JP	3495987 B	_	9-02-2004	
			JP	2002519699 T	0	2-07-2002	
WO 02075273	Α	26-09-2002	WO	02075273 A	2 2	6-09-2002	
WO 0151923	A	19-07-2001	AU	4142001 A	2	4-07-2001	
			EP	1247093 A	2 0	9-10-2002	
			WO	0151923 A	2 1	9-07-2001	
			US	2001046664 A	1 2	9-11-2001	
US 5714666	A	03-02-1998	NONE				